

ON THE HABITS OF THE CARINGA, (FORMICA GRACILIPES, GRAY.)

BY

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Every person in the Straits must be acquainted with the ferocious red ant commonly known as the Caringa, but although it is so abundant, and obnoxious, it seems that its ferocity and the sharpness of its bite are almost all the facts generally known about it. It is, however, a very interesting animal, not only on account of its peculiar intelligence and courage, but also on account of its remarkable nest-building. I cannot find that the methods of making leaf nests as practiced by the Caringa has ever been described, and as it is very curious I will here submit some account of it. The nests are built in the leaves of any tree suitable to the ants, provided that the leaves are not too stiff to bend, or too small to fasten together conveniently. Usually a tree is selected which is attacked by one of the scale insects upon the honey-like exudations of which these ants live to a large extent. If possible the nest is built over leaves or stems infested by the scale insects, so as to include them in the nest, and in any case other scale insects are carried into the nest for the food supply when requisite. When the food supply is finished, the ants leave the nest and go to another tree.

When a nest is to be built a number of ants seize one edge of a leaf in their jaws and by sticking the claws of the hind legs into an adjoining leaf steadily draw the two edges together. Usually one ant commences the work; then others come up and assist, till finally a large number can be seen holding on tightly. The structure of the legs is evidently adapted for this work, as they are remarkably long and furnished with very sharp hooked claws. If the edges of the two leaves are still too far apart, and one ant cannot reach both edges a chain is made. One ant grasps one edge with its jaws, another

seizes him gently but firmly by the notch above the abdomen in its jaws. A third repeats the operation on the second and holds the second leaf by its hind claws. In this manner the leaves are gradually pulled together till the edges almost or entirely meet. The ants can remain in this strained position for a very long time, but usually in a few minutes others come up and commence to sew the leaves together with silk. This is done in the following way. One or two ants come from the interior of the nest, each bearing a larva in its mouth, the tail of the larva pointing outwards. They then commence by applying the tail end of the grub to the edge of one leaf irritating it by quivering the antennæ over and upon it. The grub emits a thread of silk which is fixed apparently by the antennæ of ant to the leaf-edge. The sewer then runs across to the other leaf drawing the thread from the grub and fixing it there, and thus it goes backwards and forwards from leaf-edge to leaf-edge till a strong web of silk binds the two leaves together. No silk is used in lining the nest, but any holes or spaces between the leaves, are closed with a curtain of silk. When a grub's silk-producing power is exhausted, it is taken back to the interior of the nest and another one fetched. The rapidity with which the work is done is wonderful. I partially opened a nest on a Velvet apple tree (*Diospyros discolor*) tearing open a space at one end about four inches each way, by raising one of the leaves which had previously been sewn to two others. The ants seemed much excited, but soon recommenced to repair the damage. First one, then another, and eventually ten or a dozen seized the edge of the leaf in the way above described and began to pull it back into the old position. The operation took about ten minutes. The leaf seemed to move by short slight jerks, but slowly and steadily. Just as they had got it close to the other leaf, a gust of wind blew it open again and the ants had to recommence. In less than a quarter of an hour the leaves were again held in apposition and the sewing had begun.

In the interior of the nest, the larvæ seem to be put down any how, in a pile in the centre. The rest of the ants remain in the middle of the nest crowded together, and all manner of things, such as insects, bits of meat, etc., are brought in and de-

voured. Scale insects too are carried up into the nest, and thrown down anyhow, generally wrong way up. In two or three nests I have seen mud and gravel brought up and deposited; in one made of the leaves of a caryota palm at the lowest end and at a point where the leaves did not actually touch, the aperture was filled up with a quantity of small stones and red mud agglutinated together with some wet slimy substance. It is possible that this was destined to weight down that end of the nest.

The courage of the Caringa is marvellous. It does not scruple to attack any insect however large. I once witnessed a fight between an army of Caringas who tenanted the upper part of a fig tree, and advancing crowd of a much larger kind of black ants. The field of battle was a large horizontal bough about 5 feet from the ground. The Caringas standing alert on their tall legs were arranged in masses awaiting the onset of the enemy. The black ants charged singly at any isolated Caringa and tried to bite it in two with their powerful jaws. If successful the Caringa was borne off to the nest at the foot of the tree. The red ant on the other hand attempted always to seize the black ant and hold on to it, so that its formic acid might take effect in the body of its enemy. If it got a hold on the black ant the latter soon succumbed and was borne off to the nest in the top of the tree. Eventually the Caringas retreated to their nest, and the last who left the field was one who had lost one leg and the abdomen in the fight, but notwithstanding this I saw it alone charge and repulse three black ants one after the other, before it left the field.

I believe these ants are cannibals, at least they carry away dead ones into their nests, and commence sucking the bodies. When an ant is slightly wounded they do not kill it, but pull it about and nibble it, but if fatally wounded they bear it off to their nests and probably eat it. Besides other insects, meat and general animal food, they live as I have said, upon the honey of the scale insects. They suck this honey until they become so distended as to be almost transparent and on meeting with others not so provided they spit the honey with much waving of legs and antennæ into their mouths.